NASA Learning Technologies Request for Information: Development of a NASA-based Massively Multiplayer Online Learning Game

Introduction

The NASA Learning Technologies (LT) Project Office supports projects that deliver NASA relevant content through innovative applications of technologies to enhance education in the areas of Science, Technology, Engineering, and Mathematics (STEM). Research and development in each of the STEM areas are at the core of the LT mission. LT seeks to enhance formal and informal education in STEM fields with the goal of increasing the number of students in those fields of study. The LT is currently evaluating the development of a NASA-based massively multiplayer online educational game (MMO).

Background

Persistent immersive synthetic environments in the form of massive multiplayer online gaming and social virtual worlds, initially popularized as gaming and social settings, are now finding growing interest as education and training venues. There is increasing recognition that these synthetic environments can serve as powerful "hands-on" tools for teaching a range of complex subjects, including STEM-based instruction. Virtual worlds with scientifically accurate simulations could permit learners to tinker with chemical reactions in living cells, practice operating and repairing expensive equipment, and experience microgravity – making it easier to grasp complex concepts and quickly transfer this understanding to practical problems. MMOs help players develop and exercise a skill set closely matching the thinking, planning, learning, and technical skills increasingly in demand by employers today. These skills include strategic thinking, interpretative analysis, problem solving, plan formulation and execution, team-building and collaboration, and adaptation to rapid change.

The power of games as educational tools is rapidly gaining recognition. NASA is in a position to develop an online game that functions as a persistent, synthetic environment supporting education as a laboratory, a massive visualization tool, and collaborative workspace while simultaneously drawing users into a challenging, game-play experience.

Objective for Request for Information

A NASA-based MMO built on a game engine that includes powerful physics capabilities could support accurate in-game experimentation and research. It should simulate real NASA engineering and science missions in a medium that is comfortable and familiar to the majority of students in the United States today. A NASA-based MMO could provide opportunities for students to investigate STEM career paths while participating in engaging game-play. Through a NASA-based MMO, students will gain insight into a

wide range of exciting career opportunities and be encouraged to make educational choices that lead them into STEM fields of study and eventually the STEM careers needed to fulfill NASA's Vision for Space Exploration. Learning Technologies is seeking input on how to accomplish those goals.

Description of Information Requested

The purpose of this RFI is to solicit information from organizations with proven immersive synthetic environments expertise who are interested in potentially forming a MMO platform development partnership with NASA. We are currently targeting releasing a Request for Proposal in March 2008.

The NASA LT Project Office is requesting information to support the development of a NASA-based STEM educational MMO. A high quality synthetic gaming environment is a vital element of NASA's educational cyberstructure. This new synthetic world would be a collaborative work and meeting space as well as a game space of a kind familiar to increasing numbers of American students. Games and challenges in the MMO would engage students in a way that is both familiar and comfortable for them. In turn, participation in the MMO would build increased student awareness of STEM fields and lead more students to pursue STEM courses of study. The MMO will foster career exploration opportunities in a much deeper way than reading alone would permit and at a fraction of the time and cost of an internship program.

The RFI submitter is expected to address:

1. How a NASA-based educational MMO should be designed.
2. How a NASA-based educational MMO should support both formal and informal education efforts.
3. How a NASA-based educational MMO should connect to current and future NASA missions.
4. How NASA career opportunities exploration and significant STEM learning experiences would be incorporated into the design a NASA-based educational MMO.
5. How a NASA-based educational MMO game play would be engaging for all participants.

Disclaimer

It is not NASA's intent to publicly disclose vendor proprietary information obtained during this solicitation. To the full extent that it is protected pursuant to the Freedom of Information Act and other laws and regulations, information identified by a respondent as "Proprietary or Confidential" will be kept confidential. It is emphasized that this RFI is for planning and information purposes only and is NOT to be construed as a commitment by the Government to enter into a contractual agreement, nor will the Government pay for information solicited.

How to Respond

- Visit ipp.gsfc.nasa.gov/MMO, then click on RFI submissions
    - Submit by **February 15, 2008** 11:59 p.m. Eastern Standard Time
- Five (5) page limit, 12-point font size, 1 inch margins
- Authorized document formats include Adobe (.pdf), Microsoft Word (.doc), or Rich Text Format (.rtf).

Point of Contact

NASA Learning Technologies Project Office at http://ipp.gsfc.nasa.gov/mmo.